

In the claims:

1-3. (canceled)

4. (currently amended) A purified antibody that binds to ~~the~~  
a hLH $\beta$  core fragment and competitively inhibits the  
binding of ~~the~~ a B505 antibody, produced by the hybridoma  
having ATCC Designation No. HB-12000, to the hLH $\beta$  core  
fragment.

5-26. (canceled)

27. (currently amended) A method for determining the amount  
of hLH $\beta$  core fragment (hLH $\beta$ cf) or hLH $\beta$ cf-related molecule  
in a sample comprising steps of:

- (a) contacting the sample with an antibody which  
specifically binds to hLH $\beta$ cf without cross-reacting  
with hLH, hLH $\beta$  or hCG $\beta$ cf, wherein the antibody is  
produced by the hybridoma cell line accorded ATCC  
Accession No. 12000, or with a purified antibody  
that binds to the hLH $\beta$ cf and competitively inhibits  
the binding of a B505 antibody, produced by the  
hybridoma having ATCC Designation No. HB-12000, to  
the hLH $\beta$  core fragment, under conditions permitting  
formation of a complex between the antibody and  
hLH $\beta$ cf; and
- (b) determining the amount of complex formed, thereby  
determining the amount of hLH $\beta$ cf or hLH $\beta$ cf-related  
molecule in the sample.

28. (canceled).

29. (currently amended) A method for determining the amount of hLH $\beta$  core fragment (hLH $\beta$ cf) or hLH $\beta$ cf-related molecule in a sample comprising steps of:

- (a) contacting at least one capturing antibody selected from the group consisting of B503, B504 and B509 with a solid matrix under conditions permitting binding of the capturing antibody with the solid matrix;
- (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the capturing antibody;
- (c) separating the bound matrix and the sample;
- (d) contacting the separated bound matrix with an antibody which specifically binds to hLH $\beta$ cf, ~~which specifically binds to hLH $\beta$ cf~~ without cross reacting with hLH, hLH $\beta$  or hCG $\beta$ cf, wherein the antibody is a B505 antibody or a purified antibody that binds to the hLH $\beta$ cf and competitively inhibits the binding of a B505 antibody, produced by the hybridoma having ATCC Designation No. HB-12000, to the hLH $\beta$ cf, under conditions[[,]] permitting binding of antibody and antigen in the sample; and
- (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule in the sample.

30. (canceled).

31. (currently amended) The method of claim 29, wherein the step (c) comprises:

- (i) removing of the sample from the matrix; and
  - (ii) washing the bound matrix with an appropriate buffer.
32. (currently amended) A method for determining the amount of hLH $\beta$  core fragment (hLH $\beta$ cf) or hLH $\beta$ cf-related molecule in a sample comprising steps of:
- (a) contacting a capturing antibody which specifically binds to hLH $\beta$ cf without cross-reacting with hLH, hLH $\beta$  or hCG $\beta$ cf, wherein the antibody is a B505 antibody, produced by the hybridoma having ATCC Designation No. HB-12000, or a purified antibody that binds to the hLH $\beta$ cf and competitively inhibits the binding of a B505 antibody to the hLH $\beta$  core fragment, with a solid matrix under conditions permitting binding of the capturing antibody with the solid matrix;
  - (b) contacting the bound matrix with the sample under conditions permitting binding of the antigen present in the sample with the bound capturing antibody;
  - (c) separating the bound matrix and the sample;
  - (d) contacting the separated bound matrix with at least one detecting antibody selected from a group consisting of B503, B504 and B509 under conditions permitting binding of antibody and antigen in the sample; and
  - (e) determining the amount of bound antibody on the bound matrix, thereby determining the amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule in the sample.
33. (canceled).

34. (currently amended) The method of claim 32, wherein the detecting antibody is B503.
35. (previously presented) The method of claim 27, 29 or 32, wherein the antibody is labeled with a detectable marker.
36. (previously presented) The method of claim 35, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.
37. (previously presented) The method of claim 36, wherein the radioactive isotope is  $I^{125}$ .
38. (currently amended) A method of detecting ovulation in a female subject comprising:
  - (a) obtaining samples from the female subject; and
  - (b) determining the amount of hLH $\beta$  core fragment (hLH $\beta$ cf) or hLH $\beta$ cf-related molecule in the samples, the presence of a peak of hLH $\beta$ cf indicating the occurrence of ovulation.
39. (currently amended) The method of claim 38, wherein step (b) comprises:
  - (i) contacting the sample with an antibody which specifically binds to hLH $\beta$ cf without cross-reacting with hLH, hLH $\beta$  or hCG $\beta$ cf, wherein the antibody is a purified antibody that binds to the hLH $\beta$  core fragment and competitively inhibits the binding of the B505 antibody, produced by the hybridoma having ATCC Designation No. HB-12000, to the hLH $\beta$  core

fragment antibody, under conditions permitting formation of complex between the antibody and hLH $\beta$ cf; and

(ii) determining the amount of the complex, thereby determining the amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule in the samples.

40. (previously presented) The method of claim 39, wherein the antibody is labeled with a detectable marker.

41. (previously presented) The method of claim 40, wherein the detectable marker is a radioactive isotope, enzyme, dye or biotin.

42. (previously presented) The method of claim 41, wherein the radioactive isotope is I<sup>125</sup>.

43. (currently amended) A method for reducing the amount of hLH $\beta$  core fragment (hLH $\beta$ cf) or hLH $\beta$ cf-related molecule in a sample comprising the steps of:

(a) contacting the sample with an antibody which specifically binds to hLH $\beta$ cf without cross-reacting with hLH, hLH $\beta$  or hCG $\beta$ cf, wherein the antibody is a purified antibody that binds to the hLH $\beta$ cf and competitively inhibits the binding of the B505 antibody, produced by the hybridoma having ATCC Designation No. HB-12000, to the hLH $\beta$  core fragment, under conditions permitting formation of a complex between the antibody and hLH $\beta$ cf; and

- (b) removing the complex formed, thereby reducing the amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule in the sample.
44. (previously presented) The method of claim 43, wherein the removing step comprises:
- (i) contacting the complex with protein A under conditions permitting formation of a complex between protein A and an antibody; and
  - (ii) removing the complex formed, thereby removing the amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule in the sample.
45. (previously presented) The method of claim 44, further comprising contacting the complex with a secondary antibody under conditions permitting binding of this secondary antibody with the first antibody prior to step (i).
46. (previously presented) The method of claim 43, wherein the antibody is linked to a solid matrix.
47. (previously presented) The sample with reduced amount of hLH $\beta$ cf or hLH $\beta$ cf-related molecule produced by the method of claim 43.
48. (previously presented) The method of claim 27, 29, 32, 38 or 43, wherein the sample is a urine sample or a blood sample.